

REMARKS

Claims 1-3 and 5-10 are pending in this application. By this Amendment, claims 1 and 9 are amended. No new matter is added by these amendments. Claim 4 is canceled without prejudice to, or disclaimer of, the subject matter recited in those claims as drawn to non-elected groups of claims. Reconsideration of the application based upon the above amendments and the following remarks is respectfully requested.

The Office Action, on page 6, rejects claims 1-8, under 35 U.S.C. §102(b) as being anticipated by Japanese Patent Publication No. JP-A-2002-212775 to Oshima; or under 35 U.S.C. §103(a) as being unpatentable over Oshima in view of U.S. Patent No. 3,183,067 to Du Rose et al. (hereinafter "Du Rose"). The Office Action, on page 9, rejects claims 9 and 10, under 35 U.S.C. §103(a) as being unpatentable over Oshima in view of Du Rose. These rejections are respectfully traversed.

Independent claim 1, recites, among other features, a first plating bath including a nickel source having a concentration of 0.3 mol/l to 0.7 mol/l and conductivity of 80 mS/cm or more.

The Office Action asserts, on page 6, that Oshima teaches the molar ratio of the nickel source. Oshima, in fact, teaches the nickel ion concentrations relative to the concentration of chlorine ions in the range of 15g/l - 80 g/l, or 0.25 mol/l - 1.3 mol/l. Oshima does not teach the nickel source having a concentration of 0.3 mol/l to 0.7 mol/l, as positively recited in claim 1. Moreover, the 0.3 mol/l to 0.7 mol/l nickel concentration recited in claim 1 produces unexpected results. Table 1 of the Appendix shows Comparative Examples 1-6, in which the inventors developed a protective film formed by electroplating a rare-earth magnet in a plating bath having a conductivity slightly less than 80 mS/cm, or a concentration of nickel outside the recited range of 0.3 mol/l to 0.7 mol/l in claim 1. As seen in Table 1, the results of salt spray test, an indicator of corrosiveness of the protective layer, were poor. Therefore,

at least the combination of nickel concentration in the range of 0.3 mol/l to 0.7 mol/l and conductivity over 80 mS/cm as recited in claim 1, produce unexpected results over the prior art.

Independent claim 1 also recites a pH stabilizer selected from the group consisting of boric acid, ammonium borate, sodium borate, potassium borate, lithium borate, magnesium borate and ammonia.

The Office Action asserts, on page 6, that Oshima teaches these buffers. In so doing, the Office Action cites paragraph [0008] of Oshima for support. Oshima, however, in the cited portion, and otherwise, merely discloses oxycarboxylic acids acting as buffers. Oshima does not teach a pH stabilizer selected from the group positively recited in claim 1. Moreover, the group of pH stabilizers recited in claim 1 do not include the group of oxycarboxylic acids taught by Oshima. Table 2 of the Appendix shows Comparative Examples 7-13, in which the inventors developed a protective film formed by electroplating a rare-earth magnet in a plating bath using an oxycarboxylic acid as a buffer. As seen in Table 2, like Table 1, the results of the salt spray test on Comparative Examples 7-13 were also poor.

It should be noted that the features of claim 1, as amended, are distinguishable over Oshima. The attached Appendix is provided simply for the Examiner's consideration in further examination of this application.

Furthermore, Du Rose does not teach at least these features and is not applied in any manner that would overcome the above-identified shortfalls in the application of Oshima to the features positively recited in claim 1.

Independent claim 9 recites electroplating a first film with a semi-brightener. The Office Action, on page 6, asserts that Oshima teaches brighteners containing sulfur apparently in support of its claim that Oshima teaches the feature of a second protective film that

includes sulfur as recited in claim 1. However, the Office Action does not assert, and Oshima does not teach, semi-brighteners as positively recited in claim 9. "Semi-brighteners," as understood by one of ordinary skill in the art, refer to a defined class of lustering compounds distinct from brighteners, or any other class of materials. Accordingly, Oshima does not teach, nor would it have suggested, the combination of all features of claim 9.

Du Rose, again, does not teach at least this feature and is not applied in any manner that would overcome the above-identified shortfall in the application of Oshima to the features positively recited in claim 9.

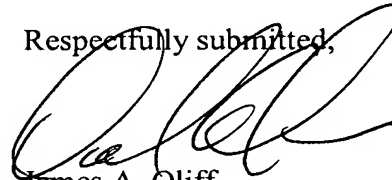
Based on the foregoing, Oshima and Du Rose, individually or in combination, cannot reasonably be considered to teach, or to have suggested, the combinations of all of the features positively recited in independent claims 1 and 9. Additionally, claims 2, 3, 5-8 and 10 are also neither taught, nor would they have been suggested, by the applied references for at least the respective dependence of these claims on the independent claims, as well as for the separately patentable subject matter which each of these claims recites.

Accordingly, reconsideration and withdrawal of the rejections of claims 1-3 and 5-10 under 35 U.S.C. §§102(b) or 103(a), as being anticipated by, or unpatentable over, the applied prior art references are respectively requested.

In view of the foregoing, Applicant respectfully submits that this application is in condition for allowance. Favorable reconsideration and prompt allowance of claims 1-3 and 5-10 are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact Applicant's undersigned representative at the telephone number set forth below.

Respectfully submitted,



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Attachments:

Petition for One-Month Extension of Time
Appendix (Tables 1 and 2)

Date: March 15, 2007

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<p>DEPOSIT ACCOUNT USE AUTHORIZATION Please grant any extension necessary for entry; Charge any fee due to our Deposit Account No. 15-0461</p>
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APPENDIX

Table 1

	FIRST PLATING BATH			SECOND PLATING BATH		HIGH-TEMPERATURE HIGH-HUMIDITY TEST	SALT SPRAY TEST
	COMPOSITION	CONDUCTIVITY mS/cm		COMPOSITION	CONDUCTIVITY mS/cm		
COMPARATIVE EXAMPLE 1	NICKEL SULFATE 0.25 M AMMONIUM 1.3 M CHLORIDE BORIC ACID 0.5M SEMI-BRIGHTENER ADEQUATE AMOUNT	125		NICKEL SULFATE 0.25 M AMMONIUM 1.3 M CHLORIDE BORIC ACID 1.2M SEMI-BRIGHTENER ADEQUATE AMOUNT	125	PASS	PLATING SWOLLEN
COMPARATIVE EXAMPLE 2	NICKEL SULFATE 0.27 M AMMONIUM 0.5 M CHLORIDE BORIC ACID 0.7M SEMI-BRIGHTENER ADEQUATE AMOUNT	74		NICKEL SULFATE 0.27 M AMMONIUM 0.5M CHLORIDE BORIC ACID 1.2M SEMI-BRIGHTENER ADEQUATE AMOUNT	73	PASS	PLATING PEELED
COMPARATIVE EXAMPLE 3	NICKEL SULFATE 0.28 M AMMONIUM 0.025 M CHLORIDE BORIC ACID 0.7M SEMI-BRIGHTENER ADEQUATE AMOUNT	43		NICKEL SULFATE 0.28 M AMMONIUM 0.025 M CHLORIDE BORIC ACID 1.2M SEMI-BRIGHTENER ADEQUATE AMOUNT	43	PLATING SWOLLEN	RUST
COMPARATIVE EXAMPLE 4	NICKEL SULFATE 0.8 M AMMONIUM 3.8 M CHLORIDE BORIC ACID 0.7M SEMI-BRIGHTENER ADEQUATE AMOUNT	187		NICKEL SULFATE 0.8M AMMONIUM 3.8 M CHLORIDE BORIC ACID 1.6M SEMI-BRIGHTENER ADEQUATE AMOUNT	188	PASS	PLATING PEELED
COMPARATIVE EXAMPLE 5	NICKEL SULFATE 1.0 M AMMONIUM 2.0 M CHLORIDE BORIC ACID 0.7M SEMI-BRIGHTENER ADEQUATE AMOUNT	120		NICKEL SULFATE 1.0 M AMMONIUM 2.0M CHLORIDE BORIC ACID 1.6M SEMI-BRIGHTENER ADEQUATE AMOUNT	125	PASS	PLATING SWOLLEN
COMPARATIVE EXAMPLE 6	NICKEL SULFATE 1.3 M AMMONIUM 0.13M CHLORIDE BORIC ACID 0.45M SEMI-BRIGHTENER ADEQUATE AMOUNT	47		NICKEL SULFATE 1.3 M AMMONIUM 0.13 M CHLORIDE BORIC ACID 0.5M SEMI-BRIGHTENER ADEQUATE AMOUNT	48	PASS	CORROSION OBSERVED

APPENDIX

Table 2

	FIRST PLATING BATH		SECOND PLATING BATH		HIGH-TEMPERATURE HIGH-HUMIDITY TEST	SALT SPRAY TEST
	COMPOSITION	CONDUCTIVITY mS/cm	COMPOSITION	CONDUCTIVITY mS/cm		
COMPARATIVE EXAMPLE 7	NICKEL SULFATE 0.25 M AMMONIUM 1.3 M CHLORIDE BORIC ACID 0.2M SUCCINIC ACID 1.0M SEMI-BRIGHTENER ADEQUATE AMOUNT	114	NICKEL SULFATE 0.25 M AMMONIUM 1.3 M CHLORIDE BORIC ACID 0.2M SUCCINIC ACID 1.0M SEMI-BRIGHTENER ADEQUATE AMOUNT	115	PASS	PLATING SWOLLEN
COMPARATIVE EXAMPLE 8	NICKEL SULFATE 0.27 M AMMONIUM 0.5 M CHLORIDE BORIC ACID 0.2M MALONIC ACID 0.5 M SEMI-BRIGHTENER ADEQUATE AMOUNT	79	NICKEL SULFATE 0.27 M AMMONIUM 0.5 M CHLORIDE BORIC ACID 0.2M MALONIC ACID 0.5 M SEMI-BRIGHTENER ADEQUATE AMOUNT	78	PASS	PLATING PEELED
COMPARATIVE EXAMPLE 9	NICKEL SULFATE 0.28 M AMMONIUM 0.025 M CHLORIDE BORIC ACID 0.2M CITRIC ACID 0.3 M SEMI-BRIGHTENER ADEQUATE AMOUNT	45	NICKEL SULFATE 0.28 M AMMONIUM 0.025 M CHLORIDE BORIC ACID 0.2M CITRIC ACID 0.3 M SEMI-BRIGHTENER ADEQUATE AMOUNT	47	PASS	RUST
COMPARATIVE EXAMPLE 10	NICKEL SULFATE 0.8 M AMMONIUM 3.8 M CHLORIDE BORIC ACID 0.2M ACETIC ACID 0.3 M SEMI-BRIGHTENER ADEQUATE AMOUNT	195	NICKEL SULFATE 0.8 M AMMONIUM 3.8 M CHLORIDE BORIC ACID 0.2M ACETIC ACID 0.3 M SEMI-BRIGHTENER ADEQUATE AMOUNT	195	PASS	PLATING SWOLLEN
COMPARATIVE EXAMPLE 11	NICKEL SULFATE 1.0 M AMMONIUM 2.0 M CHLORIDE BORIC ACID 0.2M MALIC ACID 0.5 M SEMI-BRIGHTENER ADEQUATE AMOUNT	111	NICKEL SULFATE 1.0 M AMMONIUM 2.0 M CHLORIDE BORIC ACID 1.6M MALIC ACID 0.5 M SEMI-BRIGHTENER ADEQUATE AMOUNT	109	PASS	PLATING SWOLLEN
COMPARATIVE EXAMPLE 12	NICKEL SULFATE 1.3M AMMONIUM 0.13 M CHLORIDE BORIC ACID 0.2M SODIUM 1.0 M SUCCINATE SEMI-BRIGHTENER ADEQUATE AMOUNT	50	NICKEL SULFATE 1.3M AMMONIUM 0.13 M CHLORIDE BORIC ACID 0.2M SODIUM 1.0 M SUCCINATE SEMI-BRIGHTENER ADEQUATE AMOUNT	48	PASS	PLATING PEELED
COMPARATIVE EXAMPLE 13	NICKEL SULFATE 0.6M AMMONIUM 0.08 M CHLORIDE BORIC ACID 0.2M SODIUM 0.05 M MALONATE SEMI-BRIGHTENER ADEQUATE AMOUNT	45	NICKEL SULFATE 0.5M AMMONIUM 0.07 M CHLORIDE BORIC ACID 0.2M SODIUM 0.05 M MALONATE SEMI-BRIGHTENER ADEQUATE AMOUNT	48	PASS	PLATING PEELED